

CLAIMS

We claim:

1. A starch and fiber mixture comprising from about 0.01% to about 2.0% fiber and about 0.1% to about 20% starch, wherein the starch and fiber mixture is applied to a paper mat during the paper making process.
2. The starch and fiber mixture of Claim 1 wherein the fiber has a particle size, in length, of greater than zero and up to 0.08 inches.
3. The starch and fiber mixture of Claim 1 wherein a source of the fiber is white water that has been filtered through a pressure screen.
4. The starch and fiber mixture of Claim 3 wherein the pressure screen is a 120° pressure screen.
5. The starch and fiber mixture of Claim 1 wherein the starch is derived from a source selected from the group consisting of corn, wheat, barley, tapioca, rice, potato and combinations thereof.
6. A paper mat comprising a starch and fiber mixture applied to the paper mat during a paper making process having a fiber content of about 0.01% to about 2.0%, by weight, and a starch content of about 0.1% to about 20%, by weight.
7. The paper mat of Claim 6 wherein a source of the fiber is white water that has been filtered through a pressure screen.

8. The paper mat of Claim 6 wherein the starch and fiber mixture is sprayed onto the paper mat and the paper mat is heated thereby gelatinizing some or all of the starch.
9. A paper making process comprising the steps of forming a paper mat and applying a starch and fiber mixture comprising from about 0.01% to about 2.0% fiber and about 0.1% to about 20% starch to the paper mat.
10. The process of Claim 9 wherein the paper mat is formed by sending pulp and process water to a head box, having the process water deposited from the head box onto a wire screen, removing the paper mat from the wire screen and having the paper mat further processed to obtain paper.
11. The process of Claim 10 wherein the starch and fiber mixture is applied to the paper mat after the paper mat is removed from the wire screen but before the further processing.
12. The process of Claim 10 wherein white water produced by the process is removed from the wire screen and moved into a pressure screen that obtains accepts and rejects and the starch and fiber mixture comprises the accepts.
13. The process of Claim 12 wherein the pressure screen is a 120° pressure screen.
14. The process of Claim 12 wherein the accepts comprise fiber having a particle size, in length, greater than zero and up to about 0.08 inches.

15. The process of Claim 10 wherein the paper mat is heated and the starch is cooked.
16. The process of Claim 9 wherein the starch and fiber mixture is applied to the paper mat by means selected from the group consisting of spray bars, curtain coaters and size presses.
17. The process of Claim 9 wherein the starch and fiber mixture is diluted prior to application of the starch and fiber mixture to the paper mat.
18. A process for making a starch and fiber mixture for application to a paper mat during the papermaking process comprising the steps of adding a fiber source to a starch slurry, allowing for thorough wet out of the starch and mixing the fiber source and the starch slurry at a temperature of about 32°F to about 140°F.
19. The process of Claim 18 wherein the fiber source comprises accepts from the treatment of white water from a papermaking process in a 120 ° pressure screen.
20. A method of filtering white water from a papermaking process comprising the steps of providing a pressure screen, introducing the white water into the pressure screen, generating accepts and rejects from the pressure screen wherein the accepts comprise fiber having a particle size, in length, of greater than zero and up to about 0.08 inches.
21. The method of Claim 20 wherein the pressure screen is a 120° pressure screen.